

AF *[Signature]*

Case Docket No.: SN-US035080

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Shinpei OKAJIMA

Serial No. 10/631,863

Filed: August 1, 2003

For: BICYCLE RIM



Appeal No.: _____

Patent Art Unit: 3617

Examiner: Jason R. Bellinger

COMMISSIONER OF PATENTS
Washington, D.C. 20231

Sir:

Transmitted herewith is an Appeal Brief for the above-identified application.

The item(s) checked below are appropriate:

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- ☒ A check in the amount of \$500.00 is attached.
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Patrick A. Hilsmier

Patrick A. Hilsmier
Reg. No. 46,034

SHINJYU GLOBAL IP COUNSELORS, LLP
1233 Twentieth Street, NW, Suite 700
Washington, DC 20036
(202)-293-0444
Dated: March 10, 2006



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APPEAL BRIEF

Patrick A. Hilsmier
Reg. No. 46,034
Shinju Global IP Counselors, LLP
1233 Twentieth Street, NW, Suite 700
Washington, D.C. 20036
(202) 293-0444

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

[illegible]

Appeal No.: _____

Patent Art Unit: 3617

Examiner: Jason R. Bellinger

APPEAL BRIEF

Sir:

For the appeal to the Board of Patent Appeals and Interferences from the decision dated September 6, 2005 of the Examiner finally rejecting claims 1, 5-7, 12-17, 21, 22, and 26-36, Applicant-Appellant submits the following brief in accordance with 37 C.F.R. §41.37.

In view of the following analysis of claims 1, 5-7, 12-17, 21, 22, and 26-36, Appellant believes that the unique arrangements of these claims are not disclosed or suggested in the references cited in the Office Action, either alone, or in combination. Thus, Appellant respectfully requests that the rejections of claims 1, 5-7, 12-17, 21, 22, and 26-36 be reversed, and that claims 1, 5-7, 12-17, 21, 22, and 26-36 be allowed. Also, Appellant respectfully requests that withdrawn claims 8-11 and 23-25 be rejoined in this application and also allowed, upon allowance of claims 1, 5-7, 12-17, 21, 22, and 26-36.

If there are any questions regarding this Brief, please feel free to contact the undersigned.

1. Real Party In Interest

Shimano, Inc. is the owner in the above-identified patent application. Thus, the real party in interest is Shimano, Inc.

2. Related Appeals and Interferences

Appellant and Appellant' legal representatives believe there are no appeals and/or interferences related to this Appeal.

3. Status of Claims

Claims 1, 5-17 and 21-36 are presently pending in this application. Claims 2-4 and 18-20 are cancelled claims. Claims 8-11 and 23-25 are withdrawn (non-elected) pending claims, while claims 1, 5-7, 12-17, 21, 22, and 26-36 are elected pending claims. None of the elected pending claims 1, 5-7, 12-17, 21, 22, and 26-36 have been allowed. Rather, all of the elected pending claims 1, 5-7, 12-17, 21, 22, and 26-36 stand finally rejected under 35 U.S.C. §103(a). The elected pending claims 1, 5-7, 12-17, 21, 22, and 26-36 are rejected as follows:

Claims 1, 5, 12-16 and 34-36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,583,787 to Michelotti (referred to herein as "the Michelotti patent").

Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the Michelotti patent in view of U.S. Patent No. 6,216,344 to Mercat et al. (referred to herein as "the Mercat patent").

Claims 17, 21, 22, 26-29 and 31-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the Michelotti and Mercat patents, in further view of U.S. Patent No. 219,500 to Munson (referred to herein as "the Munson patent").

Claim 30 stands rejected under 35 U.S.C. §103(a) as being unpatentable over the Michelotti, Mercat and Munson patents, in further view of U.S. Patent No. 4,626,036 to Hinsberg et al. (referred to herein as "the Hinsberg patent").

All of the elected, pending, finally rejected claims 1, 5-7, 12-17, 21, 22, and 26-36 are on Appeal.

4. Status of Amendments

An Amendment was filed on November 28, 2005, after the September 6, 2005 final Office Action (hereinafter referred to as "the Office Action"). An Advisory Action was mailed on December 30, 2005, which fails to indicate whether or not the November 28, 2005 Amendment has been entered. According to PAIR, the November 28, 2005 Amendment was not entered¹. Accordingly, the November 28, 2005 Amendment will be treated as such on Appeal. Whether or not the November 28, 2005 Amendment was entered has no bearing on the substance of this Appeal.

¹ Appellant notes that the only change to the claims in the November 28, 2005 Amendment was an additional colon ":" added to claim 17, which does not change the scope of the claims. This change was previously requested by the Examiner.

5. Summary of the Claimed Subject Matter

The presently claimed invention is basically directed to a bicycle rim (12, 212, 312, 412, 512) with first and second tubular spoke attachment portion (60, 260, 360, 460, 560) (62, 262, 362, 462, 562) heat fused to the rim (12, 212, 312, 412, 512) (claims 1, 5-7, 12-16 and 34-36); and a bicycle wheel (10, 210, 310, 510) having a bicycle rim (12, 212, 312, 512) (Claims 17-22 and 26-33). The presently claimed invention is illustrated in Figures 1-20 and described in detail in paragraphs [0033]-[00105] of the specification. The elected embodiment is illustrated in Figures 1-12 and described in paragraphs [0033]-[0075] of the specification. However, many of the claims read on the non-elected embodiments illustrated in Figures 13-20 and described in detail in paragraphs [0076]-[00105] of the specification. Thus, reference numerals for all applicable embodiments will be included in this section of the Appeal Brief. Since the other embodiments have been withdrawn from consideration, the applicable portions of drawings and specification will not be referenced in the following summary of the claimed subject matter.

Independent Claim 1

The bicycle rim (12, 212, 312, 412, 512) of independent claim 1 includes an outer annular portion (24, 224, 324, 424, 524), an inner annular portion (26, 226, 326, 426, 526), a first tubular spoke attachment portion (60, 260, 360, 460, 560) and a second tubular spoke attachment portion (62, 262, 362, 462, 562). See Figures 2-12, page 2, lines 14-16, page 6, lines 27-28, and page 12, lines 17-19. The outer annular portion (24, 224, 324, 424, 524) is adapted to receive a tire (18) thereon, the outer annular portion (24, 224, 324, 424, 524) having an outer spoke attachment opening (44a, 44b, 44c). See Figures 1-8, page 2, lines 16-18, page 8, lines 9-14, and page 9 lines 8-13. The inner annular portion (26, 226, 326, 426, 526) is fixedly coupled with the outer annular portion (24, 224, 324, 424, 524) to form an annular hollow area (A) therebetween, the inner annular portion (26, 226, 326, 426, 526) having an inner spoke

attachment opening (54a, 54b, 54c) aligned with the outer spoke attachment opening (44a, 44b, 44c). See Figures 2-8, page 6, lines 28-30, page 10, lines 4-18 and page 10, lines 28-31. The first tubular spoke attachment portion (60, 260, 360, 460, 560) is heat fused to the outer annular portion (24, 224, 324, 424, 524) at the outer spoke attachment opening (44a, 44b, 44c). See Figures 2-8, page 2, lines 21-22, page 6, lines 32-34, page 12, lines 19-21 and page 13, lines 29-32. The second tubular spoke attachment portion (62, 262, 362, 462, 562) is heat fused to the inner annular portion (26, 226, 326, 426, 526) at the inner spoke attachment opening (54a, 54b, 54c). See Figures 2-8, page 2, lines 22-24, page 6, lines 32-34, page 12, lines 21-23 and page 13, lines 29-32. The first and second tubular spoke attachment portions (60, 260, 360, 460, 560) (62, 262, 362, 462, 562) define a spoke receiving space (64, 264, 364, 464, 564) with an internal surface configured and dimensioned to secure an end of a spoke (16a, 16b, 16c, 416a, 416b, 416c) within the spoke receiving space (64, 264, 364, 464, 564), at least one of the first and second tubular spoke attachment portions (60, 260, 360, 460, 560) (62, 262, 362, 462, 562) having a rim abutment surface that contacts a radially facing surface of the rim (12, 212, 312, 412, 512) to limit radial movement relative to the rim (12, 212, 312, 412, 512). See Figures 2-12, page 2, lines 24-27, page 12, lines 2-3, page 12, lines 23-25, page 13, lines 19-28 and page 14, lines 1-3.

Independent Claim 16

The bicycle rim (12, 212, 312, 412, 512) of independent claim 16 includes an outer annular portion (24, 224, 324, 424, 524), an inner annular portion (26, 226, 326, 426, 526), a plurality of first tubular spoke attachment portions (60, 260, 360, 460, 560) and a plurality of second tubular spoke attachment portions (62, 262, 362, 462, 562). See Figures 2-12, page 2, lines 14-16, page 6, lines 27-28, and page 12, lines 17-19. The outer annular portion (24, 224, 324, 424, 524) is adapted to receive a tire (18) thereon, the outer annular portion (24, 224, 324, 424, 524) having a plurality of circumferentially spaced outer spoke attachment

openings (44a, 44b, 44c). See Figures 1-8, page 2, lines 16-18, page 8, lines 9-14, and page 9 lines 8-13. The inner annular portion (26, 226, 326, 426, 526) is fixedly coupled with the outer annular portion (24, 224, 324, 424, 524) to form an annular hollow area (A) therebetween, the inner annular portion (26, 226, 326, 426, 526) having a plurality of circumferentially spaced inner spoke attachment openings (54a, 54b, 54c) aligned with the outer spoke attachment openings (44a, 44b, 44c). See Figures 2-8, page 6, lines 28-30, page 10, lines 4-18 and page 10, lines 28-31. The first tubular spoke attachment portions (60, 260, 360, 460, 560) are fixedly coupled to the outer annular portion (24, 224, 324, 424, 524) at the outer spoke attachment openings (44a, 44b, 44c). See Figures 2-8, page 2, lines 21-22, page 6, lines 32-34, page 12, lines 19-21 and page 13, lines 29-32. The second tubular spoke attachment portions (62, 262, 362, 462, 562) are fixedly coupled to the inner annular portion (26, 226, 326, 426, 526) at the inner spoke attachment openings (54a, 54b, 54c). See Figures 2-8, page 2, lines 22-24, page 6, lines 32-34, page 12, lines 21-23 and page 13, lines 29-32. The first and second tubular spoke attachment portions (60, 260, 360, 460, 560) (62, 262, 362, 462, 562) define a plurality of circumferentially spaced spoke receiving spaces (64, 264, 364, 464, 564). The first tubular spoke attachment portions (60, 260, 360, 460, 560) are heat fused to the outer annular portion (24, 224, 324, 424, 524) and the second tubular spoke attachment portions (62, 262, 362, 462, 562) are heat fused to the inner annular portion (26, 226, 326, 426, 526). See Figures 2-12, page 2, lines 24-27, page 12, lines 2-3, page 12, lines 23-25, page 13, lines 19-28 and page 14, lines 1-3.

Dependent Claim 5

The invention of independent claim 16 may optionally further require (i.e., of dependent claim 5) each of the first tubular spoke attachment portions (60, 260, 460, 560) is integrally formed with one of the second tubular spoke attachment portions (62, 262, 462, 562) as a one-piece member with a longitudinally extending internal passageway (64, 264,

464, 564) that forms one of the spoke receiving spaces. See Figures 9-12, page 12, lines 17-19, page 12, lines 26-27 and page 14, lines 1-2.

Independent Claim 17

The bicycle wheel (10, 210, 310, 510) of independent claim 17 includes an annular rim (12, 212, 312, 512), a plurality of spokes (16a, 16b, 16c) and a central hub (20). See Figure 1 and page 5, lines 5-8. The annular rim (12, 212, 312, 512) includes an outer annular portion (24, 224, 324, 524), an inner annular portion (26, 226, 326, 526), a plurality of first tubular spoke attachment portions (60, 260, 360, 560) and a plurality of second tubular spoke attachment portions (62, 262, 362, 562). See Figures 2-12, page 2, lines 14-16, page 6, lines 27-28, and page 12, lines 17-19. The outer annular portion (24, 224, 324, 524) is adapted to receive a tire (18) thereon, the outer annular portion (24, 224, 324, 524) having a plurality of circumferentially spaced outer spoke attachment openings (44a, 44b, 44c). See Figures 1-8, page 2, lines 16-18, page 8, lines 9-14, and page 9 lines 8-13. The inner annular portion (26, 226, 326, 526) is fixedly coupled with the outer annular portion (24, 224, 324, 524) to form an annular hollow area (A) therebetween, the inner annular portion (26, 226, 326, 526) having a plurality of circumferentially spaced inner spoke attachment openings (54a, 54b, 54c) aligned with the outer spoke attachment openings (44a, 44b, 44c). See Figures 2-8, page 6, lines 28-30, page 10, lines 4-18 and page 10, lines 28-31. The first tubular spoke attachment portions (60, 260, 360, 560) are heat fused to the outer annular portion (24, 224, 324, 524) at the outer spoke attachment openings (44a, 44b, 44c), each of the first tubular spoke attachment portions (60, 260, 360, 560) having a first internal bore (64a/64b, 264a/264b, 365, 564a/564b). See Figures 2-8, page 2, lines 21-22, page 6, lines 32-34, page 12, lines 19-21, page 13, lines 19-20 and page 13, lines 29-32. The second tubular spoke attachment portions (62, 262, 362, 562) are heat fused to the inner annular portion (26, 226, 326, 526) at the inner spoke attachment openings (54a, 54b, 54c), each of the second tubular spoke attachment

portions (62, 262, 362, 562) having a second internal bore (64b/64c, 264b/264c, 375, 564b/564c). See Figures 2-8, page 2, lines 22-24, page 6, lines 32-34, page 12, lines 21-23, page 13, lines 19-20 and page 13, lines 29-32. The second internal bores (64b/64c, 264b/264c, 375, 564b/564c) are aligned with the first internal bores (64a/64b, 264a/264b, 365, 564a/564b) to form a plurality of spoke receiving spaces (64, 264, 364, 564). Each spoke receiving space (64, 264, 364, 564) is at least partially threaded. See Figures 2-12, page 2, lines 24-27, page 12, lines 2-3, page 12, lines 23-25, page 13, lines 19-28 and page 14, lines 1-3. Each of the spokes (16a, 16b, 16c) includes an outer end portion (80), an inner end portion (84) and an elongated central portion (82) extending between the outer end portion (80) and the inner end portion (84), each of the outer end portions (80) of the spokes (16a, 16b, 16c) being integrally formed with one of the elongated central portions (82) as a one-piece member. See Figures 1-8, page 14, lines 11-12 and page 14, lines 18-23. Each of the outer end portions (80) of the spokes (16a, 16b, 16c) is directly threadedly coupled within one of the spoke receiving spaces (64, 264, 364, 564). See Figures 1-8, page 14, lines 1-3, page 14, lines 11-12 and page 14, lines 18-23. The central hub (20) has the inner end portions (84) of the spokes (16a, 16b, 16c) coupled thereto. See Figure 1, page 14, lines 24-26 and page 15, lines 8-19.

Dependent Claim 21

The invention of independent claim 17, may optionally further require (i.e., of claim 21) each of the first tubular spoke attachment portions (60, 260, 560) is integrally formed with one of the second tubular spoke attachment portions (62, 262, 562) as a one-piece member with a longitudinally extending internal passageway (64, 264, 564) that forms one of the spoke receiving spaces. See Figures 9-12, page 12, lines 17-19, page 12, lines 26-27 and page 14, lines 1-3.

6. Grounds of Rejection to be Reviewed on Appeal

The following grounds of rejection are presented for review on Appeal:

- (A) whether claims 1, 5, 12-16 and 34-36 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 4,583,787 to Michelotti (referred to herein as "the Michelotti patent");
- (B) whether claims 6 and 7 are unpatentable under 35 U.S.C. §103(a) over the Michelotti patent in view of U.S. Patent No. 6,216,344 to Mercat et al. (referred to herein as "the Mercat patent");
- (C) whether claims 17, 21, 22, 26-29 and 31-33 are unpatentable under 35 U.S.C. §103(a) over the Michelotti and Mercat patents, in further view of U.S. Patent No. 219,500 to Munson (referred to herein as "the Munson patent"); and
- (D) whether claim 30 is unpatentable under 35 U.S.C. §103(a) over the Michelotti, Mercat and Munson patents, in further view of U.S. Patent No. 4,626,036 to Hinsberg et al. (referred to herein as "the Hinsberg patent").

7. *Arguments*

The claims on appeal are not rendered obvious by U.S. Patent No. 4,583,787 of Michelotti, U.S. Patent No. 6,216,344 of Mercat et al., U.S. Patent No. 219,500 of Munson, and/or U.S. Patent No. 4,626,036 of Hinsberg et al., whether taken singularly or in combination.

BRIEF SUMMARY OF ARGUMENTS

The present invention is directed to a *bicycle rim having tubular spoke attachment portions heat fused to both the inner annular portion and the outer annular portion of the hollow rim*. The tubular spoke attachment portions are designed to have bicycle spokes mounted thereto. This arrangement is permanent and distributes stresses to both the inner annular portion and the outer annular portion of the rim. This arrangement of the rim also simplifies assembly of the wheel for the wheel builder.

Basically, Appellant believes that (1) the Michelotti patent, the Mercat patent, the Munson patent and/or the Hinsberg patent, whether taken singularly or in combination in the manner suggested in the outstanding Office Action, do not disclose a device including all of the limitations of independent claims 1, 16 and 17, *as acknowledged in the Office Action*; and (2) there is no suggestion or motivation in the prior art to modify the rim of the Michelotti patent or a hypothetical rim created by combining the references in the manner suggested in the outstanding Office Action to utilize *heat fusing at two locations rather than deforming at one location* in the manner suggested in the Office Action. These arguments are explained in more detail below.

- A. **Claims 1, 5, 12-16 and 34-36 are patentable over U.S. Patent No. 4,583,787 to Michelotti (referred to herein as "the Michelotti patent") under 35 U.S.C. §103.**

Claims 1 and 16

The Office Action acknowledges that the Michelotti patent fails to disclose *both* first and second tubular spoke attachment portions that are heat fused to outer and inner portions of the rim, as required by independent claim 1. Thus, the Office Action asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the rim of the Michelotti patent to utilize *heat fusing at two locations rather than deforming at one location as disclosed therein* in order to result in the arrangement of these claims.

Specifically, the Office Action indicates that the Michelotti patent discloses the tubular spoke attachment portions being riveted to the *corresponding* portions of the rim, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize heat fusing as an equivalent fastening means in order to form a permanent connection between the bushing and the rim, thus reinforcing the rim while eliminating friction or relative movement between the bushing and the rim (which would reduce wear on both the bushing and the rim). Appellant respectfully disagrees with these assertions, as explained below.

The Michelotti patent *does not* disclose that "the tubular spoke attachment portions are riveted to the *corresponding* portions of the rim" as suggested in the Office Action. Rather, the Michelotti patent only discloses "**The bushes are apt to be riveted onto the inner element of the rim,...**" See lines 8-9 of the Abstract and column 6, lines 9-16 of the Michelotti patent where attachment to the rim is discussed. In the Michelotti patent, each bush 4 is constructed of an inner tubular body 7 and an outer tubular body 5 being partially

telescoped and reciprocally connected, with the inner tubular body 7 being riveted (deformed to contact) against the inner rim element 2. Thus, even if the riveting (deforming) taught by the Michelotti patent was replaced with heat fusing as suggested in the Office Action, *only the inner tubular bodies 7 of the two-piece bushes 4 would be heat fused to the inner rim element 2*. In other words, the Michelotti patent does not teach or suggest riveting (deforming) of the *outer* tubular bodies 5 to the *outer* rim element 1. Rather, the outer tubular bodies 5 are merely held in place by the inner tubular bodies 7, after deforming the inner tubular bodies 7. Accordingly, if the rim of the Michelotti patent were modified to utilize heat fusing instead of riveting, *both* the inner and outer tubular members *would not be heat fused* to the outer and inner annular portions of the rim as asserted in the Office Action. In other words, at best, the Michelotti patent might suggest heat fusing at only one location, if heat fusing is an obvious substitution for riveting in this type of rim, which it is not in this situation.

In response to the above argument, the Examiner indicates that even though the Michelotti patent does not specify that the first (outer) spoke attachment portion (5) is riveted to the outer portion (1) of the rim, one of ordinary skill in the art would have found it obvious to do so in order to prevent relative movement between the spoke attachment portions. However, the so-called spoke attachment portions 5 and 7 of the Michelotti patent do not move relative to each other once installed. Specifically, the deformation of the inner tubular bodies 7 of the bushes 4 not only attaches the bushes 4 to the inner rim element 2, but also creates an arrangement to "carry the bushes (4) in strict contact with the outer surface of said inner rim element 2 and thus preventing yieldings in use." See column 6, lines 9-16 of the Michelotti patent. Thus, the parts in the Michelotti patent do not move as alleged in the Office Action. Accordingly, the problem allegedly solved by riveting the outer portion 5 to the rim in the Michelotti patent is non-existent.

The Examiner further asserts that riveting of the first (outer) spoke attachment portion (5) to the outer portion (1) of the rim would be a duplication of parts. Appellants disagree with this assertion. Duplication would constitute merely adding additional bushes 4 to the rim of the Michelotti patent, not completely reconstructing the bushes 4 in a manner that is contrary to the teachings of the Michelotti patent. In other words, riveting (deforming) the first (outer) spoke attachment portion (5) to fixedly attach it to the outer rim element (1) of the rim of the Michelotti patent is unnecessary, would complicate construction, and would require a complete reconstruction of the bushes 4 and/or the rim of the Michelotti patent. Thus, such a modification can not be considered a mere duplication. Accordingly, one of ordinary skill in the bicycle art would not attempt to make such a modification (i.e., riveting/deforming the outer tubular portion 5 to the outer rim element 1) based on the teachings of the prior art.

The Examiner further asserts that "heat fusing the spoke attachment portions to the rim portions, as opposed to riveting them, would seal both ends of the spoke attachment portion, thus sealing the rim from contaminants such as water and debris; thus reducing corrosion and/or damage to the rim." Appellant notes that these alleged advantages (motivation) asserted by the Examiner are not found in the prior art. Rather, none of the prior art of record discloses or suggests heat fusing tubular spoke attachment portions to inner and outer annular portions of a hollow rim whatsoever. Thus, the prior art necessarily cannot teach any advantage to doing so. It appears that these advantages are either being pulled out of thin air or realized in light of Appellant's disclosure. In either case, this assertion from the Examiner requires impermissible hindsight reasoning. Thus, this assertion (motivation) is untenable. It is well settled in U.S. patent law that the burden is on the U.S. Patent Office to establish a prima facie case of obviousness *based upon the prior art*. This burden can be met

only by showing objective teachings in the prior art, and by showing some suggestion or motivation in the prior art to combine the objective teachings to result in the claimed invention.

Moreover, Appellant disagrees with the premise (of the Office Action) that heat fusing is an equivalent fastening means to riveting, as applied to the tubular bushes 4 of the rim of the Michelotti patent. Riveting may be equivalent to spot welding in some circumstances, e.g., where each rivet is replaced by a spot weld in order to attach two plates together. However, in the case at hand, *the Michelotti patent does not use individual rivets to attach the “bushes 4” to the rim (i.e., to attach two plates together), but rather deforms the bushes 4 themselves against the rim.* The shape and deformation of the bushes 4 of the Michelotti patent are the essence of the invention disclosed therein. Using heat fusing instead of the precise deformation taught by the Michelotti patent on the bushes 4 would completely destroy the teachings of the Michelotti patent. The Examiner, in the December 30, 2005 Advisory Action, cites various wheels using riveting and/or welding to attach various wheel members together as evidence that heat fusing and riveting (deforming) are equivalent as asserted in the Office Action. However, none of these references relate to tubular spoke attachment portions of a bicycle rim. These references merely teach that riveting may be equivalent to spot welding in some circumstances, e.g., where each rivet is replaced by a spot weld in order to attach two plates together. These references do not teach that these fastening techniques are equivalent as applied to the tubular spoke attachment portions (bushes 4) of the rim of the Michelotti patent.

Finally, the Office Action further asserts that it is well known in the art that heat fusing techniques provide a more secure and permanent connection means between one or more elements than riveting techniques. Appellant disagrees with the premise that heat fusing *per se* forms a more secure and permanent connection means than riveting techniques. In fact, heat fusing (such as welding and brazing) is not “an obvious and more beneficial

substitution with riveting” especially when applied to tubular spoke attachment portions of a rim. Heat fusing can have certain drawbacks and may not work as well in every situation as a rivet and vice versa. The strength of any connection will necessarily depend on the material(s), their thicknesses, the type of rivet, the type of weld, etc.

A riveted connection can be as secure and as permanent as heat fusing (such as welding and brazing). In fact, a riveted connection can be even more secure and more permanent than a heat fusing connection (such as welding and brazing) depending on other characteristics such as thickness/type of the materials. For example, aircraft often use numerous rivet connections that are extremely strong. The Examiner appears aware of this when alleging that riveting and heat fusing are equivalent fastening techniques in the December 30, 2005 Advisory Action based on additional references. These references relied on by the Examiner do not support the Examiner's assertion that heat fusing is more secure and permanent than riveting. Rather, these references merely illustrate certain examples where heat fusing and riveting may be interchangeably used for attaching various members together in some circumstances, but not in the present circumstance. Of course, this is not the case in all situations, and these references do not teach that these fastening techniques are interchangeable or that one is more beneficial as applied to the tubular spoke attachment members (bushes 4) of the rim of the Michelotti patent.

It is well settled in U.S. patent law that the burden is on the U.S. Patent Office to establish a prima facie case of obviousness based upon the prior art. This burden can be met only by showing objective teachings in the prior art, and by showing some suggestion or motivation in the prior art to combine the objective teachings to result in the claimed invention. In this case, the prior art fails to objectively teach the arrangements of these claims, as explained above. Accordingly, in view of the foregoing arguments, in this case, this burden has not been met.

It is also well settled in U.S. patent law that the mere fact that the prior art can be modified does *not* make the modification obvious, unless the prior art *suggests* the desirability of the modification. *In re Laskowski*, 871 F.2d 115, 10 USPQ2d 1397 (Fed. Cir. 1989). In fact, both the *suggestion* and the *expectation* of success must be found in the prior art, *not* in *Applicant's disclosure*. *In re O'Farrell*, 853 F.2d 894, 7 USPQ2d 1673 (Fed. Cir. 1988). Accordingly, as explained above, the prior art of record lacks any suggestion or expectation of success for modifying the rim of the Michelotti patent to create the Appellant's unique arrangement of independent claims 1 and 16.

Dependent Claim 5

Dependent claim 5 depends from independent claim 16, but further requires first tubular spoke attachment portions that are integrally formed with the second tubular spoke attachment portions as a one-piece member. Contrary to the position of the Office Action, the Michelotti patent does not disclose or suggest this arrangement. Rather, in the Michelotti patent, each bush 4 is constructed of an inner tubular body 7 and an outer tubular body 5 being partially telescoped and reciprocally connected, with the inner tubular body 7 being riveted (deformed to contact) against the inner rim element 2. See the Abstract, column 5 lines 21-28 and column 6 lines 9-16 of the Michelotti patent.

B. Claims 6 and 7 are patentable over the Michelotti patent in view of U.S. Patent No. 6,216,344 to Mercat et al. (referred to herein as "the Mercat patent") under 35 U.S.C. §103.

Claims 6 and 7 depend from independent claim 16. Appellant does not believe this combination of references renders claim 16 obvious as explained below. Thus, Appellant does not believe this combination of references renders claims 6 and 7 obvious as explained below.

The Mercat patent fails to account for the deficiencies of the Michelotti patent with respect to independent claim 16. In particular, the Mercat patent fails to disclose or suggest tubular spoke attachment members heat fused to both the inner and outer annular portions of a hollow rim. Rather, in the Mercat patent, the so-called spoke attachment portions are threadedly mounted or press-fitted to the rim. Thus, even if these references were combined as suggested in the Office Action, such a hypothetical device would not include the claimed arrangement set forth in independent claim 16. Claims 6 and 7 depend from independent claim 16, and thus, even if these references were combined as suggested in the Office Action, such a hypothetical device would not include the claimed arrangement set forth in claims 6 and 7.

- C. Claims 17, 21, 22, 26-29 and 31-33 are patentable over the Michelotti and Mercat patents, in further view of U.S. Patent No. 219,500 to Munson (referred to herein as "the Munson patent") under 35 U.S.C. §103.**

Independent Claim 17

Independent claim 17 is similar to independent claim 16, but is directed to a bicycle wheel that includes spokes and a central hub, and spoke receiving spaces that are at least partially threaded. Independent claim 17 includes all of the limitations of independent claim 16 as well as additional limitations. Accordingly, the Michelotti patent fails to disclose or suggest all of the limitations of independent claim 17 for the reasons explained above with respect to independent claim 16. Appellant does not believe this combination of references renders claim 16 or 17 obvious as explained below.

The Mercat patent and the Munson patent fail to account for the deficiencies of the Michelotti patent with respect to independent claims 16 and 17. In particular, the Mercat patent and the Munson patent fail to disclose or suggest tubular spoke attachment members heat fused to both the inner and outer annular portions of a hollow rim. Rather, in the Mercat patent, the so-called spoke attachment members are threadedly mounted or press-fitted to the rim. In the Munson patent, nuts G with threaded holes are merely mounted in recesses of non-hollow (wood) rim sections I. The rim has a metal tire W mounted on the rim sections I. Thus, even if these references were combined as suggested in the Office Action, such a hypothetical device would not include the claimed arrangement set forth in independent claim 16. Claims 6 and 7 depend from independent claim 16, and thus, even if these references were combined as suggested in the Office Action, such a hypothetical device would not include the claimed arrangement set forth in claims 6 and 7.

Dependent Claim 21

Dependent claim 21 depends from independent claim 17, but further requires first tubular spoke attachment portions that are integrally formed with the second tubular spoke attachment portions as a one-piece member. Contrary to the position of the Office Action, the Michelotti patent does not disclose or suggest this arrangement. Rather, in the Michelotti patent, each bush 4 is constructed of an inner tubular body 7 and an outer tubular body 5 being partially telescoped and reciprocally connected, with the inner tubular body 7 being riveted (deformed to contact) against the inner rim element 2. See the Abstract, column 5 lines 21-28 and column 6 lines 9-16 of the Michelotti patent.

The Office Action merely relies on the Mercat patent to teach a threaded connection at the outer end of the spoke, and merely relies on the Munson patent to disclose a spoke directly threadedly coupled to a spoke attachment member. Thus, even if combined *as suggested in the Office Action*, this combination does not disclose or suggest the arrangement of dependent claim 21.

D. Claim 30 is patentable over the Michelotti, Mercat and Munson patents, in further view of U.S. Patent No. 4,626,036 to Hinsberg et al. (referred to herein as "the Hinsberg patent") under 35 U.S.C. §103.

Claim 30 depends from independent claim 17. Appellant does not believe this combination of references renders claim 17 obvious as explained below. Thus, Appellant does not believe this combination of references renders claim 30 obvious as explained below.

The Hinsberg patent fails to account for the deficiencies of the Michelotti, Mercat and Munson patents with respect to independent claim 17. In particular, the Hinsberg patent fails to disclose or suggest tubular spoke attachment portions heat fused to both the inner and outer annular portions of a hollow rim. Rather, in the Hinsberg patent, the so-called spoke attachment members are conventional spokes removably received within holes on opposite sides of a non-hollow rim. Thus, even if these references were combined as suggested in the Office Action, such a hypothetical device would not include the claimed arrangement set forth in independent claim 17. Claim 30 depends from independent claim 17, and thus, even if these references were combined as suggested in the Office Action, such a hypothetical device would not include the claimed arrangement set forth in claim 30.

8. *Conclusion*

In view of the above analysis of claims 1, 5-7, 12-17, 21, 22, and 26-36, Appellant believes that the unique arrangements of these claims are not disclosed or suggested in the references cited in the Office Action, either alone, or in combination. Thus, Appellant respectfully request that the rejections of these claims be reversed, and that claims 1, 5-7, 12-17, 21, 22, and 26-36 be allowed. Also, Appellant respectfully requests that withdrawn claims 8-11 and 23-25 be rejoined in this application and also allowed, upon allowance of claims 1, 5-7, 12-17, 21, 22, and 26-36. If there are any questions regarding this Brief, please feel free to contact the undersigned.

Respectfully submitted,



Patrick A. Hilsmier
Reg. No. 46,034

Shinju Global IP Counselors, LLP
1233 Twentieth Street, NW, Suite 700
Washington, D.C. 20036
(202) 293-0444
Dated: March 10, 2006

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A- Claims Appendix

1. (Previously Presented) A bicycle rim comprising:
 - an outer annular portion adapted to receive a tire thereon, said outer annular portion having an outer spoke attachment opening;
 - an inner annular portion fixedly coupled with said outer annular portion to form an annular hollow area therebetween, said inner annular portion having an inner spoke attachment opening aligned with said outer spoke attachment opening;
 - a first tubular spoke attachment portion heat fused to said outer annular portion at said outer spoke attachment opening; and
 - a second tubular spoke attachment portion heat fused to said inner annular portion at said inner spoke attachment opening;said first and second tubular spoke attachment portions defining a spoke receiving space with an internal surface configured and dimensioned to secure an end of a spoke within said spoke receiving space, at least one of said first and second tubular spoke attachment portions having a rim abutment surface that contacts a radially facing surface of the rim to limit radial movement relative to the rim.

Claim 2 (Cancelled)

Claim 3 (Cancelled)

Claim 4 (Cancelled)

5. (Previously Presented) The bicycle rim according to claim 16, wherein each of said first tubular spoke attachment portions is integrally formed with one of said second tubular spoke attachment portions as a one-piece member with a longitudinally extending internal passageway that forms one of said spoke receiving spaces.

6. (Previously Presented) The bicycle rim according to claim 5, wherein said internal passageways are at least partially threaded.

7. (Previously Presented) The bicycle rim according to claim 6, wherein said internal passageways are through bores.

8. (Previously Presented - Withdrawn) The bicycle rim according to claim 6, wherein said internal passageways are blind bores.

9. (Previously Presented - Withdrawn) The bicycle rim according to claim 5, wherein said internal passageways are stepped through bores with each stepped through bore having an internal abutment surface.

10. (Previously Presented - Withdrawn) The bicycle rim according to claim 16, wherein said first tubular spoke attachment portions are separate members from said second tubular spoke attachment portions.

11. (Previously Presented - Withdrawn) The bicycle rim according to claim 10, wherein

each of the first and second tubular spoke attachment portions has an internal bore formed therein that is at least partially threaded such that said internal bores of both said first and second tubular spoke attachment portions at least partially define said spoke receiving spaces.

12. (Previously Presented) The bicycle rim according to claim 16, wherein said first tubular spoke attachment portions are at least partially located within said outer spoke attachment openings; and

said second tubular spoke attachment portions are at least partially located within said inner spoke attachment openings.

13. (Previously Presented) The bicycle rim according to claim 12, wherein said first tubular spoke attachment portions extend radially inwardly from said outer annular portion into said hollow area of said rim; and

said second tubular spoke attachment portions extend radially outwardly from said inner annular portion into said hollow area of said rim.

14. (Previously Presented) The bicycle rim according to claim 16, wherein said first tubular spoke attachment portions and second tubular spoke attachment portions are welded to said outer and inner annular portions, respectively.

15. (Previously Presented) The bicycle rim according to claim 16, wherein said first tubular spoke attachment portions and said second tubular spoke attachment portions are brazed to said outer and inner annular portions, respectively.

16. (Previously Presented) A bicycle rim comprising:
an outer annular portion adapted to receive a tire thereon, said outer annular portion having a plurality of circumferentially spaced outer spoke attachment openings;
an inner annular portion fixedly coupled with said outer annular portion to form an annular hollow area therebetween, said inner annular portion having a plurality of circumferentially spaced inner spoke attachment openings aligned with said outer spoke attachment openings;
a plurality of first tubular spoke attachment portions fixedly coupled to said outer annular portion at said outer spoke attachment openings; and
a plurality of second tubular spoke attachment portions fixedly coupled to said inner annular portion at said inner spoke attachment openings;
said first and second tubular spoke attachment portions defining a plurality of circumferentially spaced spoke receiving spaces,
said first tubular spoke attachment portions being heat fused to said outer annular portion and said second tubular spoke attachment portions being heat fused to said inner annular portion.

17. (Previously Presented) A bicycle wheel comprising:
an annular rim including

an outer annular portion adapted to receive a tire thereon, said outer annular portion having a plurality of circumferentially spaced outer spoke attachment openings,

an inner annular portion fixedly coupled with said outer annular portion to form an annular hollow area therebetween, said inner annular portion having a plurality of circumferentially spaced inner spoke attachment openings aligned with said outer spoke attachment openings,

a plurality of first tubular spoke attachment portions being heat fused to said outer annular portion at said outer spoke attachment openings, each of said first tubular spoke attachment portions having a first internal bore,

a plurality of second tubular spoke attachment portions being heat fused to said inner annular portion at said inner spoke attachment openings, each of said second tubular spoke attachment portions having a second internal bore, said second internal bores being aligned with said first internal bores to form a plurality of spoke receiving spaces, each spoke receiving space being at least partially threaded;

a plurality of spokes with each of said spokes including an outer end portion, an inner end portion and an elongated central portion extending between said outer end portion and said inner end portion, each of said outer end portions of said spokes being integrally formed with one of said elongated central portions as a one-piece member, each of said outer end portions of said spokes being directly threadedly coupled within one of said spoke receiving spaces; and

a central hub with said inner end portions of said spokes coupled thereto.

Claim 18 (Cancelled)

Claim 19 (Cancelled)

Claim 20 (Cancelled)

21. (Previously Presented) The bicycle wheel according to claim 17,
wherein

each of said first tubular spoke attachment portions is integrally formed with one of said second tubular spoke attachment portions as a one-piece member with a longitudinally extending internal passageway that forms said spoke receiving space.

22. (Original) The bicycle wheel according to claim 21, wherein
each of said internal passageways is a through bore.

23. (Original - Withdrawn) The bicycle wheel according to claim 21,
wherein

each of said internal passageways is a blind bore.

24. (Original - Withdrawn) The bicycle wheel according to claim 17,
wherein

said first tubular spoke attachment portions are separate members from said second tubular spoke attachment portions such that each of said first and second internal bores partially defines one of said spoke receiving spaces.

25. (Original - Withdrawn) The bicycle wheel according to claim 24,
wherein

each of said first and second internal bores is at least partially threaded.

26. (Original) The bicycle wheel according to claim 17, wherein
said first tubular spoke attachment portions are at least partially located within said
outer spoke attachment openings; and

said second tubular spoke attachment portions are at least partially located within said
inner spoke attachment openings.

27. (Original) The bicycle wheel according to claim 26, wherein
said first tubular spoke attachment portions extend radially inwardly from said outer
annular portion into said hollow area of said rim; and

said second tubular spoke attachment portions extend radially outwardly from said
inner annular portion into said hollow area of said rim.

28. (Previously Presented) The bicycle wheel according to claim 17,
wherein

said first tubular spoke attachment portions and said second tubular spoke attachment
portions are welded to said outer and inner annular portions, respectively.

29. (Previously Presented) The bicycle wheel according to claim 17,
wherein

said first tubular spoke attachment portions and said second tubular spoke attachment
portions are brazed to said outer and inner annular portions, respectively.

30. (Previously Presented) The bicycle wheel according to claim 17,
wherein

each of said inner end portions of said spokes includes a threaded shaft section that is integrally formed with one of said elongated central portions as a one-piece member, and
each of said threaded shaft sections is threadedly coupled to a spoke nipple that is rotatably coupled to said central hub.

31. (Previously Presented) The bicycle wheel according to claim 17,
wherein

at least one of said first tubular spoke attachment portions and said second tubular spoke attachment portions having a rim abutment surface that contacts a radially facing surface of the rim to limit radial movement of the rim, respectively.

32. (Previously Presented) The bicycle wheel according to claim 17,
wherein

all of said first tubular spoke attachment portions are identical to each other and all of said second tubular spoke attachment portions are identical to each other.

33. (Previously Presented) The bicycle wheel according to claim 17,
wherein

said first tubular spoke attachment portions are constructed of the same material as the outer annular portion and said second tubular spoke attachment portions are constructed of the same material as the inner annular portion.

34. (Previously Presented) The bicycle rim according to claim 16, wherein at least one of said first tubular spoke attachment portions and said second tubular spoke attachment portions having a rim abutment surface that contacts a radially facing surface of the rim to limit radial movement of the rim, respectively.

35. (Previously Presented) The bicycle rim according to claim 16, wherein all of said first tubular spoke attachment portions are identical to each other and all of said second tubular spoke attachment portions are identical to each other.

36. (Previously Presented) The bicycle rim according to claim 16, wherein said first tubular spoke attachment portions are constructed of the same material as the outer annular portion and said second tubular spoke attachment portions are constructed of the same material as the inner annular portion.

B- Evidence Appendix

None

Appellant is not relying on any additional evidence in this appeal of the above-identified patent application other than the present record.

C- Related Proceeding Appendix

None.

Appellant is not aware of any appeals or interferences relating to the above-identified patent application. Thus, there are no decisions rendered by a court or the Board that are required to be submitted herewith.